

Preliminary Amendment  
Division of Serial No. 09/866,605, Filed: May 30, 2001  
Sughrue Ref: Q80134

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

Claims 1-23 (canceled).

Claim 24 (original): A process for fabricating a computer-generated hologram by defining a range which diffraction light obtained by diffraction of incident light leaves, determining a hologram phase distribution for allowing said diffraction light to leave the defined range, quantizing a determined phase distribution to find a quantized depth of a hologram relief, forming a relief on a substrate by photoetching on the basis of a found quantized depth to obtain a relief pattern, and patterning a resin layer using said relief pattern to form a hologram relief on a surface of said resin layer.

Claim 25 (original): A process for fabricating a computer-generated hologram by defining a range which diffraction light obtained by diffraction of incident light leaves, determining a hologram phase distribution for allowing said diffraction light to leave the defined range, quantizing a determined phase distribution to find a quantized depth of a hologram relief and the number of steps of said depth, repeating photoetching given times corresponding to an obtained depth and the number of steps to form a relief pattern on an etching substrate, and patterning a resin layer using said relief pattern to form a hologram relief on a surface of said resin layer.

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Claim 26 (currently amended): The computer-generated hologram fabrication process according to claim 24 or 25, wherein said phase distribution is determined per minute elemental hologram piece forming the hologram, and said relief is formed on the basis of a phase distribution obtained by repeatedly arranging a phase distribution of said elemental hologram piece across said substrate.

Claim 27 (currently amended): The computer-generated hologram fabrication process according to any one of claims claim 24 to 26, wherein an optical reflective layer is laminated on and along a relief side or other side of said resin layer.

Claim 28 (currently amended): The computer-generated hologram fabrication process according to any one of claim 24 to 27, wherein the number of steps L having the depth of said relief is the N-th power of 2 where N is the number of photoetching cycles.

Claim 29 (original): A computer-generated hologram, wherein a blaze pattern of sawtoothed shape in section is formed on a back surface of a transparent substrate and a depth d of said blaze pattern is  $d = \lambda / 2n$  where  $\lambda$  is the wavelength of reference light and n is a light refractive index of a material forming said transparent plate.

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Claim 30 (original): A computer-generated hologram, wherein a blaze pattern of sawtoothed shape in section is formed on a back surface of a transparent substrate with N steps having differences in level and a depth d of said blaze pattern is  $d = \lambda(N-1) / 2nN$  where  $\lambda$  is a wavelength of reference light and n is a light refractive index of a material forming said transparent plate.

Claim 31 (currently amended): The computer-generated hologram according to claim 29-~~or 30~~, wherein an optical reflective layer is laminated on and along said blaze pattern formed on the back surface of said transparent plate.

Claim 32 (currently amended): The computer-generated hologram according to ~~any one of claims claim 29 to 31~~, wherein a front surface of said transparent plate has been subject to antireflection treatment.

Claim 33 (currently amended): A reflector which uses the computer-generated hologram according to ~~any one of claims claim 29 to 31~~.

Claim 34 (original): The reflector according to claim 33, wherein a transparent adhesive layer is laminated on a front surface of said transparent plate.

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Claim 35 (original): A reflective liquid crystal display, wherein said front surface of the reflector according to claim 33 is in close contact with a back surface of said liquid crystal display.

Claim 36. (original): A reflective liquid crystal display, wherein said front surface of the reflector according to claim 34 is laminated on a back surface of said liquid crystal display with said transparent adhesive layer interposed therebetween.

Claim 37 (currently amended): The reflective liquid crystal display according to claim 35-~~or~~-36, wherein a liquid crystal display device and said transparent plate in said reflector have a substantially identical light refractive index, or said liquid crystal display device, said transparent adhesive layer and said transparent plate in said reflector have a substantially identical light refractive index.

Claim 38 (original): A reflective liquid crystal display, wherein the computer-generated hologram according to claim 33 is interposed between a liquid crystal layer and a back substrate in said liquid crystal display with a front surface of said computer-generated hologram opposite to said liquid crystal layer.

Claim 39 (original): A reflective display, wherein said front surface of the reflector according to claim 33 is in close contact with a back surface of a light transmission display.

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**Kindly add the following new claims:**

40 (new): The computer-generated hologram fabrication process according to claim 25, wherein said phase distribution is determined per minute elemental hologram piece forming the hologram, and said relief is formed on the basis of a phase distribution obtained by repeatedly arranging a phase distribution of said elemental hologram piece across said substrate.

41 (new): The computer-generated hologram fabrication process according to claim 25, wherein an optical reflective layer is laminated on and along a relief side or other side of said resin layer.

42 (new): The computer-generated hologram fabrication process according to claim 26, wherein an optical reflective layer is laminated on and along a relief side or other side of said resin layer.

43 (new): The computer-generated hologram fabrication process according to claim 25, wherein the number of steps L having the depth of said relief is the N-th power of 2 where N is the number of photoetching cycles.

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44 (new): The computer-generated hologram fabrication process according to claim 26, wherein the number of steps L having the depth of said relief is the N-th power of 2 where N is the number of photoetching cycles.

45 (new): The computer-generated hologram fabrication process according to claim 27, wherein the number of steps L having the depth of said relief is the N-th power of 2 where N is the number of photoetching cycles.

46 (new): The computer-generated hologram according to claim 30, wherein an optical reflective layer is laminated on and along said blaze pattern formed on the back surface of said transparent plate.

47 (new): The computer-generated hologram according to claim 30, wherein a front surface of said transparent plate has been subject to antireflection treatment.

48 (new): The computer-generated hologram according to claim 31, wherein a front surface of said transparent plate has been subject to antireflection treatment.

49 (new): A reflector which uses the computer-generated hologram according to claim 30.

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50 (new): A reflector which uses the computer-generated hologram according to claim 31.

51 (new): The reflective liquid crystal display according to claim 36, wherein a liquid crystal display device and said transparent plate in said reflector have a substantially identical light refractive index, or said liquid crystal display device, said transparent adhesive layer and said transparent plate in said reflector have a substantially identical light refractive index.